5590

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

November 25, 2013

Lantz Indergard
Lisbon Valley Mining Company LLC
PO Box 400
Moab, Utah 84532

Subject: Initial Review of Modification to the Waste Rock Sampling Plan included in the Approved Notice of Intention to Commence Large Mining Operations, Lisbon Valley Mining Company, Lisbon Valley Mine, M/037/0088, San Juan County, Utah

Dear Mr. Indergard:

The Division of Oil, Gas and Mining has reviewed the referenced modification to the Notice of Intention to Commence Large Mining Operations which was received August 16, 2013. The attached comments will need to be addressed before the proposal is approved.

Thank you for incorporating the Division's input (discussed during the November 7, 2012 onsite meeting) into the 2012 Waste Rock Monitoring Report, for which additional comments are provided here, and which should be incorporated into the upcoming 2013 Waste Rock Monitoring Report.

Please submit your response to this review by January 3, 2014. Questions about this review should be addressed to Peter Brinton at 801-538-5258 or to Mike Bradley at 801-538-5332. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB: mpb: eb
Attachment: Review
cc: Rebecca Doolittle, BLM Moab FO (rdoolitt@blm.gov)
P:\GROUPS\MINERALS\WP\M037-SanJuan\M0370088-LisbonValley-Summo\Final\Rev1-5590-11192013.doc

1594 West North Temple, Suite 1210, PO Box 145801, Salt Lake City, UT 84114-5801
telephone (801) 538-5340 • facsimile (801) 359-3940 • TTY (801) 538-7458 • *www.ogm.utah.gov*

UTAH DNR OIL, GAS & MINING

1st REVIEW OF AMENDED WASTE ROCK SAMPLING PLAN
Lisbon Valley Mining Company LLC
Lisbon Valley Copper Mine
M/037/0088
November 25, 2013

General Comments:

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
1		One of the authorized officers of the company will need to sign this and future amendments.	pnb	

106.4 - Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
2	General	The amendment to the Waste Rock Sampling Plan should be reflected in the upcoming 2013 Waste Rock Monitoring Report.	pnb	
3	Page 2, Table	Include Rock Type 8, which is referred to in the 2012 monitoring report.	pnb	
4	Page 2, para 4	Discuss how samples of the same rock type are proposed to be composited, since the Division has seen some compositing methods that are inappropriate.	pnb	
5	Page 2, para 4	Barium, beryllium, chromium, lead, mercury, TDS, and sulfate should be in the list of analytes measured in the meteoric water mobility procedure (MWMP) and other tests, unless you want to provide justifiable reasons to exclude them. Consider testing for nitrate. Generally identify the detection limits to be used, which should allow for comparison to Utah groundwater standards.	pnb	
6	Additional Information	Please describe the analyses that will be provided going forward (for example, the type of ABA testing, such as modified Sobek). Include any important details (such as the MWMP extraction and leachate pHs, and the MWMP maximum percent of particle sizes over 5 cm). Contact the Division with questions.	pnb	
7	Omission	The Annual Waste Dumping Schedule should be updated and submitted to replace the schedule provided in the old "Geochemical (Waste Rock) Sampling Plan".	pnb	
2012 Waste Rock Monitoring Report Comments (To be addressed in the upcoming 2013 waste rock report.)				
8	General	The overall discussion of rock types and characterization in terms of high and low ANP is meaningful but incomplete since AGP is an essential factor to consider. A more complete way to discuss characterization is in terms of NNP and NPR, which incorporate both ANP and AGP, which you begin to discuss in the"2012 Waste Rock Reporting Review" section. Please refine the overall conclusions and discussion to include the NNP and NPR data that have been collected.	pnb	
9	General	Discuss the minerals responsible for acid formation and acid neutralization.	pnb	
10	Environmental Criteria, Table 1	Provide information for Rock Type 8 (referred to in "2012 Waste Rock Reporting Review"), and NNP or NPR values for each rock type.	pnb	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
11	Environmental Criteria	Correct the statement that "The sulfur content . . . decreases the acid neutralization potential (ANP)." The ANP is based on the amount of potentially neutralizing material, and does not account for potentially acid forming material.	pnb	
12	Waste Rock Handling & Survey	Identify the character (e.g. NPR) and encapsulation thickness of Rock Types 1-3 and 6-7, and any other Rock Types used for the encapsulation of Rock Types 4 and 5, consistent with the approved plan.	pnb	
13	Waste Rock Sampling & Analysis	Correct the statement that "Bulk samples are analyzed in accordance with a kinetic procedure – the Meteoric Water Mobility Procedure (MWMP)." The MWMP test is a short term leach test, not a kinetic procedure.	pnb	
14	Sampling Locations & Methods	Refer to the appendix with Pit As Built Mapping, which should also include the locations of the current year's samples.	pnb	
15	2012 Waste Rock Reporting Review	Provide NNP values for each rock type for the current year, as well as the NPR values. Also indicate, based on the NNP and NPR values, whether the material is categorized as likely acid forming (NNP < -20 t $CaCO_3$/kt; NPR < 1), uncertain (-20 t $CaCO_3$/kt < NNP < +20 t $CaCO_3$/kt; 1 < NPR < 3), or likely acid neutralizing (NNP > +20 t $CaCO_3$/kt; NPR > 3).	pnb	
16	2012 Waste Rock Sampling Results	Discuss results in terms of NNP and NPR instead of ANP.	pnb	
17	Waste Rock Vegetation Testing	Consider removing this section of text, and submit future waste dump revegetation information in a stand-alone submittal, rather than including it in the Waste Rock Monitoring reports. Thank you for the information.	pnb	
18	Synopsis of Waste Rock Results	Please clarify the statements that a specific analyte was detected or not detected in identified rock types by changing such statements to indicate that analytes were or weren't detected in the leachate from a specific rock type.		
19	Table 3	It is unclear how the NPR Factor was calculated. Please correct and/or clarify.	pnb	
20	Summary & Conclusions	Revise this section to refer to NPR and NNP values for the reasons identified earlier.	pnb	
21	Possible Omission	Table C-2 of Appendix C of the draft Arcadis report identified Bed 12 as being "often pyritic", which would suggest some percentage of sulfur. No distinct data on Bed 12 is available, but Rock Type 6 (Beds 11-13) appears to have low AGP. Explain as needed in the 2013 annual report.	pnb	
22	Appendix B	Past samples appear to have been tested without consistent testing parameters, such as size reduction to less than 5 cm prior to leaching, which is a standard for current MWMP testing. Also, the NDEP MWMP test requires the extraction pH to match local precipitation. The Division is aware of the past BLM recommendation that the pH match local groundwater conditions for backfilled material, which might be more basic than pH 7 on average. Sample size and extraction fluid amounts are also standardized. Results of past testing are meaningful, but there are limitations for which they can be compared and applied. Standardized testing is recommended, consistent with the proposed amendment to the waste rock sampling plan.	pnb	
23	Appendix C & Appendix D	Data in Appendix C report a number of samples to be "Uncertain" with regard to acid formation. In the November 7, 2013, meeting at the BLM-Moab Field Office, LVCM indicated there was a problem with the data as reported, and that the actual nature of Beds 14 and 15 was decidedly net neutralizing. The laboratory-signed reports of percent $CaCO_3$ in Appendix D show little neutralization potential. In the 2013 annual waste rock report, provide the Division with any corrected numbers, and explain the reason for any reported errors in the 2012 report.	pnb	

Comment #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
24	Appendix F	Please use more distinguishable colors to represent dumped Beds 6 through 10 on the 2013 figures. The color gradation is nice, but nearly match the background image. Identify end-of-year dump boundaries, since they don't necessarily match the aerial photographs.	pnb	
25	Appendix F, Omission	A map of the waste dumps adjacent to the GTO pit showing the locations of any placed deleterious materials should be provided, as has been done with the other dumps. Aerial imagery shows recent disturbance on the dump north of the GTO pit. This area had previously been excluded from disturbed area boundaries as pre-law disturbance, but due to this recent activity, it must be included in disturbed areas for reclamation and bonding purposes.	pnb/ mpb	
26	Appendix F, 2012 B Dump As-Built Map	It appears acid forming material may have been placed in the uphill edge of the B dump in two locations without encapsulation to the south. This will need to be discussed.	pnb	
27	Appendix G	In general the maps are good, but please use more distinguishable colors to identify beds. Identify the date for which the mapping is current. Please identify the locations and names of samples taken during the report year.	pnb	